

IN THE SPECIFICATION

Please replace original paragraphs 15, 18, and 25 with the following replacement paragraphs:

[0015] FIG. 1 illustrates an example of a network in which a load balancing service is coupled to a network element to provide load balancing on behalf of a cluster of image archive systems. As illustrated in FIG. 1, one or more imaging modalities 102 are configured to generate medical image data. The imaging modalities may include, without limitation, an x-ray system, a computer tomography system, an ultrasound system, a magnetic resonance imaging system, or a nuclear medicine system. Other modalities may be used and the invention is not limited to these particular modalities. The image modalities 102 may create medical image data in a DICOM compliant image data format, or a non-DICOM compliant image data format. In the event that the image data is in a non-DICOM compliant image data format, a DICOM gateway (not shown) may be used to reformat the non-DICOM compliant image data into DICOM compliant image data. The DICOM compliant image data is transferred to a desired destination for storage, processing, or display via a network 104 that is made up of one or more network elements 106. The network 104 may be an enterprise network, such as a Local Area Network that may be deployed in a medical facility or other facility. Examples of several typical networks may be a Hospital Information System (HIS) or a Radiological Information System (RIS). Alternatively, the network 104 may be a more extensive network such as a wide area network ("WAN"), a metro area network ("MAN"), a public network such as the Internet, or other large scale network.

[0018] The network element 106 associated with the network service 112 is preferably a content switch configured to filter data packets to identify particular packets and inspect the identified packets to determine their content. For example, a content switch may monitor the data packet traffic on the network 104 by setting filter values to identify packets on the network 104 that contain a destination address of the image archive system 108. The identified packets may be retrieved from the network 104 and stored in a memory within network element. The network element may then inspect the retrieved data packets to determine what type of data and/or tasks they contain. The invention is not limited to this embodiment however.

[0025] FIG. 3 depicts a network element according to an embodiment of the present invention. In particular the network element 106 illustrated in FIG. 3 generally includes a processor 302, which includes control logic 304, and a memory 306. The processor 302, control logic 304 and memory 306 provide the functionality and control of the network element 106. The network element 106 also includes one or more network data ports 308 that enable the network element 106 to be connected to the network 104. A switch fabric 310 under the control of the processor 302, is provided to interconnect the network data ports 308 and to direct packets therebetween. The switch fabric 310 may be supported by a packet queue 312 that is configured to temporarily store packets or other protocol data units prior to transmission on the network or before being processed by the processor 302.

IN THE CLAIMS

Claims 1-36. (Canceled)

Claim 37, (New) A method for performing network based load balancing of medical image data among a plurality of image archive resources by a network service deployed on a network element implemented on the network, the method comprising the steps of:

monitoring, by the network service, a parameter associated with each of the plurality of image archive resources indicative of an available capacity of each of the plurality of image archive resources;

receiving, by the network service, medical image data having embedded therein instructions associated with a task to be performed by at least one of the image archive resources in connection with the medical image data;

extracting, by the network service, the instructions associated with the task from the medical image data;

determining, by the network service, a level of complexity of the task to be performed from the instructions associated with the task;

selecting, by the network service, one of the plurality of image archive resources to be used to perform the task in connection with the medical image data using, as a selection function, the available capacity of each of the plurality of image archive resources and the level of complexity of the task to be performed; and

transferring, by the network service, the medical image data to the selected one of the plurality of image archive resources.

Claim 38. (New) The method of claim 37 wherein the step of selecting comprises selecting the one of the resources having the greatest available capacity relative to the complexity level of the task to be performed.

Claim 39. (New) The method of claim 37, wherein the medical image data is formatted as a DICOM message.

Claim 40. (New) The method of claim 37, wherein the plurality of image archive resources comprises a plurality of Picture Archive Systems (PACS).

Claim 41. (New) The method of claim 40 wherein the parameter is one of the group consisting of the PACS server load, or the PACS storage time.

Claim 42. (New) The method of claim 37 wherein, the parameter is one of the group consisting of the resource load, the capacity of the network, or the congestion of the network.

Claim 43. (New) The method of claim 37, wherein the selection function is further based on a priority level of the task and a priority level of the resource.

Claim 44. (New) The method of claim 43, wherein the step of selecting comprises selecting the one of the plurality of resources having a priority less than or equal to the priority level of the task.

Claim 45. (New) An apparatus for performing network based load balancing of medical image data among a plurality of image archive resources, the apparatus comprising:

- a network element coupled to a network and configured to send and receive data via the network; and

- a network service coupled to the network element, the network service configured to:

- monitor a parameter associated with each of the plurality of image archive resources indicative of an available capacity of each of the plurality of image archive resources;

- receive medical image data having embedded therein instructions associated with a task to be performed by at least one of the image archive resources in connection with the medical image data;

- extract the instructions associated with the task from the medical image data;

- determine a level of complexity of the task to be performed from the instructions associated with the task; and

select one of the plurality of image archive resources to be used to perform the task in connection with the medical image data using, as a selection function, the available capacity of each of the plurality of image archive resources and the level of complexity of the task to be performed; and

transfer the medical image data to the selected one of the plurality of image archive resources.

Claim 46. (New) The apparatus of claim 45 wherein the network service is operative to select the one of the resources having the greatest available capacity relative to the complexity level of the task to be performed.

Claim 47. (New) The apparatus of claim 45, wherein the medical image data is formatted as a DICOM message.

Claim 48. (New) The apparatus of claim 45, wherein the plurality of image archive systems comprises a plurality of Picture Archive System (PACS).

Claim 49. (New) The apparatus of claim 48 wherein the parameter is one of the group consisting of the PACS server load or the PACS storage time.

Claim 50. (New) The apparatus of claim 45 wherein the parameter is one of the group consisting of the resource load, the capacity of the network, or the congestion of the network.

Claim 51. (New) The apparatus of claim 45, wherein
the selection is further based on a priority level of the task and a priority level of the image archive resource.

Claim 52. (New) The apparatus of claim 51, wherein the selection is based on selecting the one of the plurality of resources having a priority less than or equal to the priority level of the task.